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Exercise Prescriptive Practices Of Nurse Practitioners Who Use The Internet

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EXERCISE PRESCRIPTIVE PRACTICES OF NURSE PRACTITIONERS WHO USE THE INTERNET

by

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Abstract

The purpose of this descriptive study was to determine the exercise prescriptive practices and individual exercise habits of adult, family, and gerontological nurse practitioners who utilize the Internet. Pender's Health Promotion Model provided the theoretical framework for the study. The target population was adult, family, and gerontological nurse practitioners who use the Internet. The first 34 respondents were the nonrandom convenience sample. A researcher-designed home page was placed on-line with the consent form and Modified Auburn Exercise Questionnaire attached. Participants selected responses to the items and submitted the consent form and questionnaire to the e-mail address of the researcher. The study was guided by the following research questions: What are the most common medical reasons for which nurse practitioners prescribe exercise? What are the exercise prescriptive practices and personal exercise habits of nurse practitioner? Analysis of data utilizing descriptive statistics found that weight management prompted the

exercise prescription most often and that 47.1% of nurse practitioners developed individualized prescriptions for exercise. Ninety-four percent of the respondents engaged in a regular exercise program. The findings of the study indicate that this sample of nurse practitioners has not achieved Healthy People 2000's goals of increasing to 65% the number of health care providers who routinely develop individualized exercise prescriptions for their clients. Recommendations for further research include conduction of a similar study utilizing pediatric nurse practitioners to determine the health promotion practices among children and adolescents and replication of the study without Internet usage for comparison.

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Table of Contents

List of Tables

Chapter I

The Research Problem

The life expectancy of Americans has increased dramatically over the past 30 years. Preventive medicine has been identified as the focal point for developing behaviors that will decrease the risk of disease, premature death, and disability (Jordan, 1994). In order to ensure good health and longevity, each individual must assume responsibility for his or her own health-promoting behaviors. Physical activity and the initiation of an exercise program are considered the best prescriptions for ensuring improved cardiorespiratory status, lowered systolic and diastolic blood pressures, decreased incidence of cancer, decreased morbidity and mortality rates, and increased longevity. The benefits of exercise are numerous and can be more effective than medication (Burns, 1996). In spite of the known positive effects of exercise, Americans continue to lead predominantly sedentary lifestyles which create health problems, thus an increase in health care costs. Health care providers, such

as physicians and nurse practitioners, are the key to promoting the benefits of exercise. However, little is known regarding their involvement in utilizing exercise as a prescriptive practice. Therefore, the focus of this study was to ascertain the individual perception of the nurse practitioner regarding exercise and to identify the exercise prescriptive practices of nurse practitioners on the Internet.

Establishment of the Problem

Physical inactivity among Americans has reached a level that has not previously been recognized (Griffin, 1997). The discovery of computers, escalators, drive-through banks, and fast food accesses have encouraged Americans to become even less physically active than in previous years (Griffin, 1997). The Centers for Disease Control and Prevention (1996) reported that nearly 60% of adults currently have a lifestyle that involves little or no physical activity. Forty percent of the elder population has restricted mobility and activity limitations, and approximately 17% depend on caregivers to assist with the activities of daily living. Regular exercise can slow the effects of time on the musculoskeletal system. However, most individuals ignore

the effects of aging until the point when they are usually irreversible (Sherman, 1997). Fewer than 7.6% engage in a level of exercise that produces cardiorespiratory benefits. Twenty-five percent of adults in the United States do not engage in any form of physical activity (Jones & Eaton, 1995).

Studies regarding the effects of physical inactivity have been performed primarily with middle-aged, white males. However, there is increasing evidence that the lack of physical activity has its origin in younger populations. Researchers have found that the young people of America are not as physically active as they should be (Francis, 1996). Modifiable adult risk factors for cardiovascular disease have been identified in 60% of children by the age of 12 years. These risk factors carry over into adulthood. For example, the levels of physical activity in childhood are comparable to the levels found once the individual reaches adulthood. In view of this fact, early identification of high-risk children and the initiation of improved exercise practices in school-age children are imperative (Francis, 1996).

Physical activity can be advantageous in the enhancement of the quality of life. Sedentary lifestyles

decrease both the quality and longevity of life and increase morbidity rates among individuals with or without preexisting risk factors. The presence of modifiable cardiovascular risk factors along with a sedentary lifestyle can adversely affect multiple facets of an individual's life (Jordan, 1994). Cholesterol levels, obesity, hypertension, heart disease, osteoporosis, and smoking were among risk factors directly affected by lack of physical activity (Jordan, 1994). Steven Blair, an epidemiologist at the Cooper Institute for Aerobics Research in Dallas, published a study comparing the effects of lack of physical activity with other risk factors. Blair's research (cited in Griffin, 1997) determined that individuals with no significant risk factors other than physical inactivity were more likely to die prematurely than those individuals with significant risk factors who exercise daily. This lack of physical activity has been a causative factor in approximately one third of deaths due to cardiovascular disease.

The cost of cardiovascular disease is immense. Coronary artery bypass procedures cost approximately $30,000 with 300,000 performed each year. Based on mortality rates for individuals with cardiovascular

disease, the cost of a sedentary lifestyle is $5.7 billion annually (Francis, 1996). Some form of light physical activity significantly reduces the incidence and risk of death from cardiovascular disease, cancer, hypertension, and osteoporosis, thus decreasing costs (Hearn, 1995). Elrik (1996) presented compelling evidence that exercise helps reverse established heart disease, reduce mild to moderate blood pressure elevations, improve endurance, prevent and reverse bone loss, reduce depression and anxiety, and reduce the risk of colon and breast cancer. Breast cancer reduction rates have been identified in premenopausal and younger women who engage in regular physical activity (Thune, Brenn, Lund, & Gaard, 1997). Physically active males and females have a 53% and 98% respective decrease in the chance of premature death. Physical inactivity significantly increases the risk of acute myocardial infarction among men as determined by the research of Lakka et al. (1994). Those who engage in regular physical exercise are more likely to reduce other risk factors, such as (a) smoking, (b) eating red meat, (c) caffeine intake, and (d) weight control (Jordan, 1994).

In addition to the reduction of risk factors, the benefits for engaging in regular physical activity could be society's best investment in public health. Physical activity can lead to increased energy levels, increased mobility, and improved self-esteem which could help an individual avoid death or disability (Burns, 1996). Morbidity and mortality rates have been reduced by as much as 25% in individuals who participate in regular exercise programs ("Physical Activity," 1996). Kushi et al. (1997) found that an inverse relationship existed between the frequency of leisure time physical activity and the total all-cause mortality rate. Exercise is also a safe, easily accessible, and self-administered intervention that is inexpensive and enjoyable (Burns, 1996). A regular exercise program that involves stretching, strength and endurance training, and cardiovascular enhancing activities can decrease the loss of muscle mass, improve bone density, strengthen muscles, and reduce joint pain. Other benefits of regular exercise include a decreased risk of depression, lower cholesterol levels, improved sleep quality, and improved mental acuity (Sherman, 1997).

Electronic communication has made a positive impact in its ability to reach populations with ease. However, it

has eliminated the ability of the interviewer to qualitatively analyze body and facial languages. It has also limited the accessible population to those who are computer literate, can communicate effectively in writing, and can afford the hardware, software, and fees associated with computer usage. In spite of the disadvantages associated with online studies, research has indicated an increased use of the Internet for research in areas that can impact public health and assist the primary care provider in developing health promotional guidelines and contribute to the reduction of risk factors (Lakeman, 1997).

There have been many quantitative studies conducted regarding physical activity and cardiovascular diseases utilizing the interview process and mailed questionnaires. Limited studies have been conducted via computer devices for data collection. Cardiovascular disease is one area that impacts a large majority of the population, many of whom cannot be contacted via interview or questionnaire due to time or financial limitations. LaCoursiere (1997) studied stress and uncertainty in individuals with cardiovascular disease utilizing the Internet as the data collection device. The researcher lacked the information

necessary to compare differences between persons who are online support groups users versus those who do not use online support mechanisms. This information deficit rendered increased legitimacy of the need for an increase in online studies. Barbour (1997) also utilized the Internet for her study regarding fibromyalgia where the effect and use of exercise were studied. More than 50% of the participants identified exercise as beneficial treatment for relief of fibromyalgia symptoms. These studies indicate that data obtained from Internet studies are reliable and that the use of this data collection device is becoming increasingly popular.

The beneficial effects of exercise have been well documented, and primary care providers should be encouraging clients to engage in physical activity. However, many clients are uninformed concerning the initiation of an exercise program. Studies have demonstrated that a written, individualized exercise prescription increases patient compliance with an exercise program. However, information is limited regarding the actual use of a written prescription for exercise. Phillips (1997) determined that nurse practitioners reported recommending exercise for their clients, but no

written documentation was found to support the claim nor were exercise prescriptions given.

Studies demonstrating the benefits of developing individual exercise prescriptions have been documented in the literature. Wadlow (1994) worked with a team that consisted of a fitness instructor and an exercise physiologist who carefully evaluated each individual and recorded a baseline blood pressure and heart rate. Each participant was then given a written prescription for exercise instead of medication. Ninety percent of the patients who began the program completed it with success. Participants were required to have an interest and initiative for engaging in regular physical activity. Williford, Barfield, Lazenby, and Olson (1992) found that a written exercise prescription improved the likelihood of continued client participation. Jones and Eaton (1995) also demonstrated that counseling regarding the beneficial effects of exercise has a significant impact on client behavior. The researchers found that 23% of physically active patients cited an order from a physician as motivation for the participation in and completion of a regular exercise program. Primary care providers must continue to be actively involved in health promotion and

maintenance, such as exercise programs, for clients to remain involved in wellness activities.

Health promotion is the central idea of Healthy People 2000. The goals for Healthy People 2000 regarding exercise are that no more than 15% of persons aged 6 years and older will be living a sedentary lifestyle and that a minimum of 30% of the population will engage in daily physical activity (Francis, 1996). A more specific aspect of this goal is to have at least 20% of the adult population engaging in a level of physical activity that will maintain cardiorespiratory fitness (Jones & Eaton, 1995). If this goal is to be recognized, primary care providers must assess the frequency, type, and duration of activities of their clients as part of their routine evaluation (Williford et al., 1992). Primary care providers have the opportunity and obligation to educate the public regarding the positive aspects of exercise and to help clients engage in a more physically active lifestyle.

Primary care providers actively promote smoking cessation, control of cholesterol levels, weight loss programs, and the treatment of hypertension (Key, DeNoon, & Boyles, 1997). However, there is no documented evidence

that exercise practices have been promoted with such fervor. Despite the documented research of the benefits of regular physical activity, the exercise prescription practices of nurse practitioners have not been studied. Nurse practitioners should be able to educate individuals regarding the benefits of health-promoting behaviors and help clients recognize the direct impact exercise has on health and level of function. It is imperative that the nurse practitioner aid individuals who pursue methods to achieve healthy lifestyles to obtain the highest possible level of health and well-being. Therefore, the purpose of this study was to examine and document the exercise promotion and prescription practices of nurse practitioners who utilize the Internet.

Significance to Nursing

The Office of the Surgeon General in 1994 collaborated with a number of representatives from health-related institutions, including the American College of Sports Medicine, to prepare the first report on physical activity and health. The purpose of the collaborative effort was to summarize the existing research regarding the role of physical activity in disease prevention and its effect on morbidity and mortality. Results

demonstrated that health and well-being can be significantly impacted by moderate and repetitive levels of physical activity and that this activity does not have to be strenuous to be effective. The report also found that more than 60% of American adults do not engage in regular physical activity and more than 50% of youths 12 to 21 years of age are not physically active. The Office of the Surgeon General determined that the scope of physical inactivity poses a serious national problem. Primary care providers have a responsibility to public health to assist in reducing the financial burdens of morbidity and decrease the mortality rate by educating clients regarding the benefits of physical activity. Nurse practitioners can assist clients by providing written exercise prescriptions and assisting them in establishing attainable goals for exercise.

The goals for Healthy People 2000 regarding exercise are multifaceted. Two objectives are that no more than 15% of persons aged 6 years and older will be living a sedentary lifestyle and that 30% of the population will engage in daily physical activity (Francis, 1996). Another facet of the Healthy People 2000 objectives is that 65% of health care providers will routinely provide clients with

a written, individualized exercise prescription (Francis, 1996). Nurse practitioners, as primary care providers, can positively influence the health care practices of the nation and help to decrease the morbidity and mortality rates of clients, thereby reducing national health care costs.

Despite the documented beneficial effects of exercise and the positive implications for the nurse practitioner, only one study was identified in the literature review involving exercise recommendations by nurse practitioners. This study indicated a need for further research regarding the recommendation of exercise and the use of the exercise prescription in the primary care setting.

Theoretical Framework

Pender's (1996) Health Promotion Model provided the construct for the research study. According to Pender (1996), health promotion programs must be designed not only for individuals, but for families and communities in which the individual resides. Exercise prescriptions, as one aspect of health promotion, must be designed with all these variables in mind.

Pender (1996) defined health as a "state of complete physical, mental, and social well-being and not merely the

absence of disease" (p. 17). Health promotion is aimed at promoting "the level of well-being and self-actualization of a given individual or group" (Pender, 1996, p. 34). The Health Promotion Model is a framework utilized to integrate nursing and individual adaptations to factors that affect health behaviors. The Health Promotion Model is used to portray the multifaceted nature of individuals in the pursuit of health and their interaction with the environment.

Pender's Health Promotion Model is based on the following assumptions:

1. Persons seek to create conditions of living through which they can express their unique human health potential.

2. Persons have the capacity for reflective self-awareness, including assessment of their own competencies.

3. Persons value growth in directions viewed as positive and attempt to achieve a personally acceptable balance between change and stability.

4. Individuals seek to actively regulate their own behavior.

5. Individuals in all their biopsychosocial complexity interact with the environment, progressively transforming the environment and being transformed over time.

6. Health professionals constitute a part of the interpersonal environment, which exerts influence on persons throughout their life span.

> 7. Self-initiated reconfiguration of person-environment interactive patterns is essential to behavior change. (Pender, 1996, pp. 54-55)

These assumptions emphasize the active role that the client must engage in to develop and maintain a level of health and well-being. The client needs to modify his or her environment for those necessary health behaviors.

The Health Promotion Model serves as a framework for explaining and predicting health-promoting lifestyles in individuals of all socioeconomic backgrounds. This model has also been used in research studies to determine the effect of exercise in individuals of varying ages with a variety of medical diagnoses. The flexibility of the Health Promotion Model provides the researcher with the ability to capture variables relevant to a specific population or health behavior. Pender (1996) identified prior related behaviors as the best predictor of behavior. Positive outcomes of prior health-promoting behaviors are likely to be a strong influence for engaging in future health-promoting behaviors. Self-efficacy, benefits, barriers, and activity-related affects indirectly influence health-promoting behaviors.

Self-efficacy is an individual's perception of their ability to execute a particular plan of action. If an

individual believes he or she possesses the ability to perform a certain skill, a positive outcome is more likely. Perceptions of a skill and perceived competence in a particular area motivate individuals to engage in behaviors in which one feels a level of excellence. Self-efficacy motivates one to engage in health-promoting behaviors directly by effective expectations and indirectly by affecting perceived barriers and commitment in the pursuit of a plan of action (Pender, 1996).

The plan to engage in a health-promoting behavior is often influenced by the expected benefits or outcomes of the behavior. These anticipated benefits are mental representations of positive consequences of a behavior. Belief in a positive outcome can be a positive reinforcement to engaging in specific behaviors. Individuals tend to invest time and effort in activities if the likelihood of a positive outcome is higher. Benefits from behavior performance may be intrinsic or extrinsic. Intrinsic benefits may be more powerful motivational and continuation factors. Examples of these benefits would include an increased alertness and a decrease in feelings of fatigue. Examples of extrinsic benefits that may be of high motivational significance

include monetary rewards or positive social interactions (Pender, 1996). The current study identified the attitudes and opinions of family, adult, and gerontological nurse practitioners regarding exercise, both for themselves and their clients, and the perceived ideas of the long-term benefits of a regular exercise program.

Anticipated barriers to action have been shown to affect intentions to engage in and execute a particular behavior. These perceived barriers may be imagined or tangible. Availability, convenience, expense, and time consumption are considered to be potential barriers. When an individual lacks motivation and barriers are present, action is not likely to occur and vice versa. According to the Health Promotion Model, barriers to action affect health-promoting behavior directly by serving as blocks to action and indirectly through decreased commitment to the plan of action (Pender, 1996).

According to Pender (1996), the feelings of an individual following a particular behavior have a direct impact on subsequent thoughts of the behavior and are likely to determine future engagements in maintenance of the behavior for long periods of time. Behaviors associated with positive feelings are more likely to be

repeated. Activity related affect is proposed as a direct influence on health behavior and as an indirect influence through self-efficacy and commitment to a long-term plan.

Pender's Health Promotion Model suggests specific strategies that directly affect individual commitments to health-promoting behavior. The exercise prescription constitutes written directions for a specific action at a given time mutually agreed upon by the practitioner and the client. The written directions for exercise increase the likelihood that the client will engage in the specific behavior. Successful goal attainment reinforces the repetition of the action (Pender, 1996).

In summary, the Health Promotion Model provides the nurse practitioner with guidelines that are useful in explaining, predicting, and altering health-promoting behaviors. There are a number of influences that determine the likelihood that an individual will initiate and continue these behaviors, including perceived benefits of action, perceived barriers to action, perceived self-efficacy, activity related affects, and situational influences. The nurse practitioner must consider not only the individual, but he or she must look at the environment in which the individual lives and operates. Nurses and

nurse practitioners who understand community health issues are ideally suited to provide leadership in instituting health-promoting programs. In considering these factors, the nurse practitioner can increase the possibility of initiating a successful exercise program (Pender, 1996).

Assumptions

For the purposes of this study, the following assumptions were identified:

1. Nurse practitioners are aware of the beneficial effects of exercise.

2. Nurse practitioners will answer the questionnaire truthfully.

3. Prescribing exercise routines for clients are included in the scope of practice of nurse practitioners.

4. Information obtained from the Internet is similar to information obtained from written questionnaires.

Purpose of the Study

The purpose of this study was to describe the individual exercise practices and the exercise prescriptive practices of adult, family, and gerontological nurse practitioners who utilize the Internet.

Statement of the Problem

Exercise as a health-promotion activity has been documented to be cost-effective in that the outcome of regular physical activity is improved cardiovascular status, decreased blood pressure levels, decreased risk of cancer, and a delayed onset of the long-term effects of diabetes. These positive outcomes result in fewer hospitalizations and medications and decrease health care expenditures (Blair, 1995). Physical fitness as a preventive measure has been shown to be related to delays and decreases in all-cause mortality. There is also compelling evidence that exercise helps reverse established heart disease, prevent stroke, reduce mild to moderate elevations in blood pressure, prevent or delay the vascular complications of diabetes, improve endurance, prevent and reverse bone loss, reduce depression and anxiety, and reduce the risk of colon and breast cancer (Elrik, 1996). Primary care providers are in unique positions to include the exercise prescription as a part of their treatment plan. Nurse practitioners as primary health providers have the opportunity to promote and encourage health-promotion habits in their practices to improve the quality of life for their clients. There is no

documented research which addresses nurse practitioners' practices in recommending or prescribing exercise as a part of the treatment plan. Therefore, this study was intended to describe the incidence of exercise prescription use among nurse practitioners who use the Internet.

Research Questions

This study was guided by four questions:

1. What is the most common diagnosis of clients seen by nurse practitioners who utilize the Internet?

2. What are the most common medical reasons for which the nurse practitioner prescribes exercise for clients?

3. What are the exercise prescriptive practices of nurse practitioners who complete the questionnaire via the Internet?

4. What are the personal exercise practices of nurse practitioners who responded to the questionnaire via the Internet?

Definition of Terms

The following operational terms were defined for the purposes of this study:

Nurse practitioner: health care provider certified and practicing as a family, adult, or gerontological nurse practitioner as determined by his or her responses to the Auburn Exercise Questionnaire.

Exercise prescription: set of guidelines and instructions given to clients delineating a specific type and duration of physical activity in which the client should engage to prevent mortality risk as determined by the Auburn Exercise Questionnaire.

Exercise practices: physical activity that a family, adult, or gerontological nurse practitioner engages in routinely as determined by their responses to the Auburn Exercise Questionnaire.

Internet: a global information system that provides high level services to allow access to a vast amount of information and communication between public and private subscribers.

Conclusion

In this chapter the problem was identified as the unknown individual exercise and exercise prescriptive practices of nurse practitioners in spite of literary support of the beneficial effects of physical activity and its impact on the reduction of morbidity and mortality

rates. Pender's Health Promotion Model (1996) was identified as the theoretical basis for research, definitions of terms were presented, and the significance of the research to nursing was discussed. The following chapter will present a review of the literature applicable to the research.

Chapter II

Review of Literature

The concept of health-promotion practices has gained tremendous popularity in the health care field in recent years. Modern health care has become more focused on disease prevention in order to decrease the incidence of disease and to help defray rising health care costs. Health-promotion practices have shown demonstrated evidence in the reduction of all-cause mortality and morbidity, cardiovascular disease, cancer, and the long-term effects of diabetes. Health care providers must examine their own attitudes regarding health-promotion practices in order to promote positive behaviors and outcomes in clients. Studies have been conducted on the attitudes and practices of health care professionals, but only one study was identified specifically relating to nurse practitioners (Phillips, 1997). This review of literature examined the effects of physical activity on the longevity of life and the attitudes of health care

professionals regarding exercise. The following literature examined findings in relation to the current study.

A study by Kushi et al. (1997) was pertinent to the current study in evaluating exercise as a health-promoting behavior. Kushi et al. (1997) conducted a large prospective study of postmenopausal women to determine if a relationship existed between physical activity and all-cause mortality. Physical activity was determined by responses obtained through mailed questionnaires.

Participants for the study were chosen by random selection from a list of Iowa women ages 55 to 69 years who possessed a valid driver's license. The final sample contained 40,417 women who could be followed through the course of the prospective study. Women who had a previous history of heart disease or cancer or those who died within the first 3 years of the study were excluded from final data analysis (Kushi et al., 1997).

Physical activity was classified as moderate or vigorous. The activity was subdivided into low, medium, or high based on the frequency and intensity of the exercise. Among women who reported regular physical activity, the mutivariate adjusted relative risk (RR) was 0.78 with a 95% confidence interval (CI). For moderate levels of

activity, increased frequency was also associated with risk. Multivariate adjusted RRs from low to high frequency of moderate activity were 1.0, 0.83, 0.63, and 0.59, respectively. Vigorous physical activity revealed multivariate adjusted RRs at 1.0, 0.83, 0.74, and 0.62. The RR of death during the 3-year follow-up period was 1.15 for medium activity and 1.40 for low activity. No statistical evidence of age and physical activity interaction emerged during analysis of the data. Smoking was found to have inverse associations between risk mortality and physical activity. Physical activity was associated with a decreased mortality risk for past smokers with an RR of 0.49. For current smokers, the corresponding RRs were 0.76 and 0.77 for those who never smoked (Kushi et al., 1997).

The researchers concluded that the mortality risk for each cause of death category was lower among those reporting regular physical activity as opposed to no regular physical activity. Risk of death from cardiovascular disease decreased with increasing frequency with both moderate and vigorous physical activity. The risk of death from respiratory illness decreased significantly as physical activity increased. In

conforming to Pender's (1996) Health Promotion Model (1996), exercise allows individuals to engage in and develop higher levels of health and well-being and avoid premature death or disease. The study of the current researcher sought to determine the exercise practices of nurse practitioners, male and female, and the development of individualized exercise prescriptions.

Exercise in the prevention of all-cause mortality encompasses the prevention of cancer. The influence of physical activity on the risk of breast cancer was the purpose of a study conducted by Thune et al. (1997). Thune et al. noted that physical activity can affect hormonal concentrations in the body. Therefore, an attempt was made to determine if regular physical activity could lower the hormone levels directly affecting the risk of developing breast cancer.

The sample consisted of 25,624 women from three countries who had no previous diagnosis of breast cancer. Women who developed cancer or who died within the study's first year were excluded from data analysis. Physical activity was divided into four categories: (a) leisure time spent reading or watching television, (b) walking or bicycling 4 hours per week, (c) exercising 4 hours per

week to keep fit or participating in recreational athletics, and (d) vigorous exercise or competitive sports. Participants completed a questionnaire and were screened at a clinical site regarding the accuracy of information on physical activity, menopausal status, height, and weight (Thune et al., 1997).

The researchers determined that 351 cases of breast cancer existed among the final sample. The mean age of diagnosis of breast cancer was 54.7 years. Women who reported moderate activity during leisure time accounted for two thirds of the study group. Only 15% of the sample exercised regularly. Those women who reported regular leisure time physical activity tended to be taller, to have a lower body mass index, a low ratio of total cholesterol to high-density lipoprotein (HDL) serum cholesterol, lower serum triglyceride levels, and higher HDL cholesterol levels (Thune et al., 1997).

Cox proportional hazards regression analysis was used to investigate the effect of physical activity and covariates of breast cancer incidence. Analysis of covariance was used for comparison. Two-tailed statistical analysis was used for all significant tests with a 5% level of significance. The overall risk of breast cancer

decreased with increasing levels of leisure time physical activity ($p = .04$). A 37% risk reduction was found in women who exercised at least 4 hours per week during their leisure time. An inverse relationship was found between the level of physical activity during leisure time and the risk of premenopausal breast cancer when the groups were subdivided into pre-menopausal and post-menopausal categories (Thune et al., 1997).

The researchers concluded that regular physical activity in both the workplace and during leisure time, especially in pre-menopausal and younger women, has a protective effect against breast cancer. The researchers also indicated that the inclination to be physically active may be inherited as is the predisposition to breast cancer. However, social and cultural influences on exercise can be more important than genetic factors, which led the researchers to stress that physical activity is a modifiable and independent variable (Thune et al., 1997). Pender (1996) believes that the perception of an individual regarding their ability to execute a particular plan is an important aspect of engaging in and continuing a regular exercise program for the purpose of health promotion. The current study sought to determine the

perception of the nurse practitioner regarding the importance and benefits of an exercise plan.

One of the proposed benefits of regular physical activity is that of improved cardiovascular fitness. The men of Finland have one of the highest recorded risks for coronary heart disease. Therefore, Lakka et al. (1994) studied the relationship between leisure time physical activity, cardiorespiratory fitness, and the risk of acute myocardial infarction. The researchers sought to determine whether leisure time physical activity and cardiorespiratory fitness actually had a direct impact on the risk for coronary artery disease.

The random sample was stratified and balanced according to age and consisted of 1,453 men. Those with cardiovascular disease or cancer were initially excluded from the study. Men with hypertension were included in the final analysis. A modified version of the Minnesota Time Physical Activity Questionnaire was used to obtain a 12-month history of leisure time physical activity. Physical activity was categorized into three types: (a) conditioning, (b) non-conditioning, and (c) walking or bicycling. An exercise tolerance test was used to assess cardiorespiratory fitness. Electrocardiograms (EKGs) were

obtained during assessment of cardiorespiratory fitness. Confounding variables were controlled for by the assessment of smoking, blood pressure, socioeconomic status, and medical history (Lakka et al., 1994).

Pearson's product-moment correlation was used to estimate the association between physical activity, maximal oxygen uptake, and the risk of coronary heart disease. Two-sided *t* tests were used in the analysis for statistical significance. One hundred sixty-six of the participants were free of both cardiovascular disease and cancer and had normal resting and exercise EKGs. Myocardial infractions (MI) were found on follow-up in 42 of these men. When the group was divided into three levels of physical activity, the percentage of myocardial infarction decreased in the highest level from 4.7% to 1.3%. After excluding participants with hypertension, the percentage of MI decreased from 4.9% to 0.7% (Lakka et al., 1994).

Lakka et al. (1994) concluded that conditioning leisure time physical activity has a direct, positive effect on decreasing the risk of coronary heart disease. Nonconditioning physical activity was not found to have any effect on the risk of coronary heart disease. The

researchers concluded that moderate to high intensity levels of physical activity are required to provide a significant decrease in coronary heart disease. Pender's (1996) Health Promotion Model provides a framework for explaining and predicting health-promoting lifestyles in individuals. The plan to engage in these health-promoting behaviors is often influenced by the expected benefits or outcomes of the behavior. Lakka et al. (1994) provided adequate information on the expected benefits. The current research sought to obtain information regarding the attitudes of the nurse practitioner relating to the beneficial effects of exercise.

In a study similar to that of the current researcher, Callaghan (1995) investigated the health-related behaviors of student nurses in Southeast England. It is imperative that primary care providers engage in health-promoting behaviors in order to recommend these behaviors for their clients. This study documents the positive model nurses can provide for their clients. The aims of the study were to investigate the extent of compliance with a wide range of health-related behaviors and to compare health-promotion behaviors of males and females.

One hundred thirteen nursing students who had already completed classes responded to the questionnaire and were selected as the sample. The questionnaire, designed in 1991 by Wardle and Steptoe, assessed the following five classes of health-related behaviors: (a) substance use, (b) positive health practices, (c) diet and eating habits, (d) driving behavior, and (e) preventive health care (Callaghan, 1995).

Callaghan (1995) found that 47% of the sample reported being smokers. The majority (19%) of the smokers reported smoking less than one cigarette per day. Among those, 78% expressed a desire to quit smoking. The majority of smokers were males (58%), but 83% expressed a desire to quit or reduce their smoking behavior. Eighty-five percent of the sample reported the use of alcohol with 56% being social drinkers. Sixty-one percent of the sample reported engaging in exercise during the previous 2 weeks. Females reported more exercise behavior than males (70% and 53%, respectively). Females (71%) reported a stronger desire to increase their exercise behavior than males (64%). Males and females reported an average of 7 hours sleep per night. Sun protection was utilized by 50.5%, and less than 79% reported regular tooth brushing

habits. Sixty-nine percent of the sample made a conscious effort to avoid fat and cholesterol. Caffeine consumption was high at 82% (Callaghan, 1995).

In gender specific behaviors, 79% of women reported pap smears within 3 years, 48% performed routine self-breast exams, and 44% reported breast exam by a health professional. Thirty percent of the males reported self-testicular examinations routinely, but 30% also reported never having performed self-testicular exams (Callaghan, 1995).

Callaghan (1995) also found that male nurses reported less exercise than non-nursing males. Female nurses were also found to be less compliant in health-related behaviors than non-nursing females. However, Callaghan stressed that the health behaviors of primary care providers are unknown. The Health Promotion Model (Pender, 1996) stresses the importance of engaging in health promotional behaviors. The study of the current researcher seeks to obtain information regarding the health promotion behaviors of nurse practitioners.

If health promotion behaviors are to be practiced among adult clients and primary care providers, good health habits must be initiated in childhood. According to

Francis (1996), the activity levels established in childhood usually set the pattern for adult leisure time physical activity. Harrell, Gansky, Bradley, and McMurray (1997) conducted a study to determine leisure time activities of elementary school children. Leisure time activity was assessed in third- and fourth-grade children utilizing a questionnaire adapted for age from the Know Your Body Health Habits Survey. A list of 25 commonly performed activities ranging from very sedentary to very vigorous was given to the participants. Metabolic equivalent, blood pressure, serum cholesterol, and body mass index were measured on each child. Demographic data including age, gender, race, and socioeconomic status were obtained from all participants.

A convenience sample of 2,200 third- and fourth-graders from 18 schools across North Carolina comprised the study group. The subjects ranged in age from 7 to 12 years. Questionnaires were administered in classrooms, and then the children were assessed physiologically. Height, weight, skinfolds, and blood pressure measurements were obtained, and blood samples were taken for cholesterol measurement. The activity of each child was assigned to one of four categories of metabolic equivalents (METs):

(a) very low (2 METs), (b) low (3 METs), (c) moderate (5 METS), and (d) high (8 METs). Activity intensity levels were further divided into three scores: (a) the MET level of their most sedentary activity, (b) the MET level of their most vigorous activity, and (c) the mean MET level of their three top activities (Harrell et al., 1997).

Homework (31%), bicycling (31%), watching television (29%), playing video games (21%), and running (20%) were reported among the top activity levels by boys and girls. Boys reported playing video games (33%), playing football (32%), bicycling (31%), watching television (28%), and playing basketball (26%) among their top leisure time physical activities. Girls most often reported homework (39%), bicycling (31%), watching television (30%), dancing (27%), and reading (23%). There were no obvious activity differences with regard to race, rural versus urban environment, or socioeconomic status (Harrell et al., 1997).

When categorized by intensity levels, leisure time physical activity reported by boys was significantly more intense than those reported by girls. Thirty-eight percent of the top three leisure time activities of girls were classified as low active with only 21% high active. The

mean MET level for the top activities was 4.2 and 4.8 for girls and boys, respectively. Of the top three activities, 76% of the girls reported one or more sedentary activities, and 62% of the boys reported one sedentary activity. Seventy-one percent of the boys reported a high intensity activity, while only 49% of the girls reported a high intensity activity. The prevalence of obesity was 27.4% in boys and 24.6% in girls. Seventy-two percent of non-obese boys (n = 67) and 51% of non-obese girls reported higher levels of intensity activities than obese girls (40%). Systolic blood pressure, diastolic blood pressure, cholesterol, or skinfolds were not found to be significantly correlated with activity levels (Harrell et al., 1997).

The researchers concluded that activity levels of boys are higher than girls as early as third and fourth grade. Race, location, nor socioeconomic status had any effect on the types of activities, but they differed by gender. Overall, the children in the study were found to be fairly inactive. If it is substantiated that activity levels of adults are established in childhood, health care providers need to focus on children and adolescents as well as adults in helping to develop health-promoting

activities. Pender (1996) stressed the concept of anticipated barriers to action which can affect the intentions of an individual to engage in and execute a particular behavior. Nurse practitioners must stress to young adults the importance of physical activity and develop exercise prescriptions for this age group so that tomorrow's generation will be healthier and less costly to our nation.

The current research utilized Pender's (1996) Health Promotion Model to investigate the health-related behaviors of nurse practitioners. Weitzel (1989) utilized Pender's model to examine the health promotional behaviors of blue-collar workers. The purpose of the study was to determine whether specific components of the Health Promotion Model related to health-promoting behaviors.

The sample consisted of 179 skilled, semi-skilled, and unskilled workers. The subjects were predominantly white (51%) males (70%) ranging in age from 20 to 60 years. Forty-four percent reported a high school education with only 10% having had an eighth grade or less education. Various surveys and questionnaires were utilized to measure components of the Health Promotion Model. The Multidimensional Health Locus of Control was

used to measure perceived health locus. The Value Survey was utilized to record and measure the importance of health. The Health Self-Efficacy Scale measured the self-efficacy of the participants, and the Health Promoting Lifestyle Profile was utilized to measure outcome variables (Weitzel, 1989).

The Health scale score determined that 53% of the participants placed a high value on health. The total scores of all instruments determined that participants who believed they could successfully perform health-promoting behaviors and who believed themselves to be in good health, practiced more health-promoting behaviors than those subjects who had less confidence in themselves (Weitzel, 1989).

The researchers concluded that perceptions of health status and self-efficacy were the most powerful determinants in health-promoting behaviors as Pender (1996) suggested. The study suggested that the variables in the Health Promotion Model have a positive influence on the prediction of health-promoting behaviors. The researcher was unable to establish a definitive influence of self-efficacy which would lead to the maintenance of an established exercise program. Demographic variables did

not have any effect, positive or negative, on the engagement of subjects in health promotional activities. The research suggested that both affluent persons and blue-collar workers are concerned about their health (Weitzel, 1989). The study of the current researcher investigated the health promotional practices and the development of individual exercise prescriptions for clients in order to increase the likelihood that participants will continue an established behavior.

In order for clients to develop and continue an established behavior, they need some instruction regarding exercise duration, frequency, and type. The development of the exercise prescription is one way of helping the client to engage in and continue an exercise program. It is also a process that requires a strong knowledge base and the desire of health care providers to promote a higher level of health and well-being in their clients.

Williford et al. (1992) conducted a study to determine the attitudes and practices of physicians relative to exercise and the development of exercise prescriptions. From a list of physicians from the Alabama State Board of Medical Examiners, 250 eligible physicians were randomly selected to participate in the survey. A

questionnaire was developed by a panel of physicians, nurses, and exercise physiologists to determine the attitudes of the selected physicians and their role in exercise promotion and prescription. Test-retest reliability scores from a sample of 50 subjects ranged from 0.95 to 0.98 for each of the multiple-choice questions.

The questionnaire was mailed to the randomly selected recipients. Individuals were eliminated from the study if data revealed they did not reside in the State of Alabama, had no direct involvement in patient care, or specialized in areas in which exercise had no inferential relevance. The final sample consisted of 168 physicians yielding a 69% response rate. The mean age of the physicians was 45.5 ± 10.8 years with a range of 28 to 78 years. The sample consisted of predominantly family practice and internal medicine physicians (75%) with 87% of the respondents being male (Williford et al., 1992).

Descriptive statistical analysis revealed that 91% of the physicians encouraged their patients to engage in regular exercise while only one third reported the development of individualized exercise prescriptions. In only 49% of the respondents was an exercise history part

of the initial examination, and, in fact, only 23% were familiar with the American College of Sports Medicine (ACSM) guidelines for exercise in healthy adults. However, 78% of the physicians indicated the need for courses in medical school related to the medical benefits of exercise. The majority (68%) of the physicians referred their clients to physical therapists for the development of an exercise prescription, followed by other physicians (20%), exercise physiologists (9%), and nurses (3%) (Williford et al., 1992).

The researchers concluded that while physicians support exercise as a health-promoting practice, they lack confidence in developing exercise prescriptions due to inadequate education in the field of assessing and prescribing exercise. Williford et al. (1992) cited lack of insurance reimbursements and lack of standard formats for assessing and prescribing exercise as other possible reasons for little or no patient counseling.

As a result of the research findings, Williford et al. (1992) suggested that physicians increase their efforts and refine their counseling skills. The ACSM has developed guidelines related to quantity and quality of exercise for healthy adults. The authors recommend

increasing physician familiarity with these guidelines in an attempt to meet the new objectives for the year 2000 which states: "Increase to at least 65% the proportion of primary care providers who assess and counsel their patients regarding the frequency, duration, type and intensity of each patient's physical activity practices as part of a thorough evaluation and treatment program" (p. 633). The Health Promotion Model (Pender, 1996) ascertains that individuals need some form of motivation to engage in and continue a health promotional behavior. The individualized exercise prescription can provide the motivation necessary to help individuals initiate programs that will lead to longevity of life. The current study sought to determine the exercise practices and exercise prescriptive practices of nurse practitioners. Health care providers can be strong motivational forces for their clients if they believe in and participate in health-promoting behaviors.

The accuracy and reproducibility of exercise prescriptions based on the client's perceived exertion rating were the basis for a study conducted by Dunbar, Goris, Michielli, and Kalinski (1994). The American College of Sports Medicine recommends 15 to 60 minutes of

exercise for maximal health benefits. Dunbar et al. (1994) sought to determine if ratings of perceived exertion in the development of exercise prescriptions would be valid for this range of exercise duration.

The sample consisted of healthy men (N = 8) whose mean age was 23 years. The subjects received no special training nor were they trained runners or cyclists. The mean weight of the participants was 70.7 kg (155 pounds) with a mean height of 171.2 cm (5 ft 7 in). The subjects were instructed to avoid alcohol, coffee, tobacco, exercise, and food for 4 hours prior to testing. Ratings of perceived exertion were graded utilizing the Borg 15 graded category scale. During a familiarization trial, subjects completed the Borg 15, then exercised at 10-minute intervals on a treadmill and bicycle ergometer, with a 5-minute rest period between exercise trials. Target heart rates of 150 beats/minute were achieved (Dunbar et al., 1994).

Maximum oxygen uptake was determined by utilizing a cycle ergometer with constant pedaling at 60 revolutions/minute. Perceived ratings of exertion were also obtained during this segment of the trial. Subjects were then placed on a treadmill and asked to manipulate

the speed until they achieved their perceived exertion target level at which they continued for 25 minutes. The subjects utilized the same process on the cycle ergometer, increasing pedal tension until the perceived target level of exertion was achieved. Environmental conditions did not play a factor in exercise outcomes, as all exercises were performed under constant temperature and humidity readings (Dunbar et al., 1994).

The researchers concluded that the perceived level of exertion according to the participant is a valid means of regulating exercise intensity. Individuals who exercise for at least 25 minutes are able to achieve health benefits unitizing their own perceptions of energy exertion. The researchers also determined that no special training is needed regarding exercise perception and the individual need not follow any specific protocol. The study of the current researcher presented information regarding the development of individualized exercise prescriptions based on need, motivation, and accessibility to facilities. The exercise prescriptive practices of nurse practitioners were also evaluated and analyzed. The Health Promotion Model (Pender, 1996) presents the idea that individuals seek to regulate their own behavior in

the pursuit of a level of health and well-being suitable for their individual needs and desires.

In a study similar to that of the current researcher, Phillips (1997) sought to determine the documented exercise prescription practices of nurse practitioners in clients with cardiovascular disease. A descriptive ex post facto design was used to examine nurse practitioner exercise prescriptive practices. A researcher-designed review form was utilized to obtain demographic data, documented exercise mention, and documented exercise prescription (Phillips, 1997).

A convenience sample of nurse practitioners practicing in four geographical locations in Mississippi (N = 4) was used for the study. Twenty-five records of clients with a documented diagnosis of hypertension, ischemic heart disease, previous myocardial infarction, hyperlipidemia, or atherosclerotic heart disease with no documented contraindication to exercise from each of the four rural clinics were reviewed for documented evidence of either the mention of exercise or an exercise prescription. The four geographical locations represented were determined by the researcher and were Northeast Mississippi, Southwest Mississippi, Southeast Mississippi,

and Northwest Mississippi. The final sample consisted of 100 client records in which the subjects ranged in age from 35 to 65 years (Phillips, 1997).

Descriptive statistics and ANOVA were used to analyze the data. Group A consisted of 64% female and 36% male subjects. Twelve percent of these clients received an exercise mention, and 4% received an exercise prescription. Group B consisted of 56% female and 44% male subjects. There were no clients in this clinic who received either documented exercise mention or exercise prescription. Forty-eight percent of the subjects in Group C were female and 52% were male. There was no evidence of documented exercise mention or prescription for these clients. Group D consisted of 72% female and 28% male subjects. Twenty percent of the subjects were advised by the practitioner to exercise, but there was no evidence of a documented exercise prescription. ANOVA analysis was conducted to obtain information regarding differences between the four groups. The analysis revealed no significant differences with regard to age, sex, or exercise prescription. Documented exercise mention between the groups was found to be significantly different (Phillips, 1997).

The researcher concluded that even though Mississippi leads the nation in the number of deaths related to cardiovascular disease, few nurse practitioners actually document exercise recommendations or exercise prescriptions for their clients. The researcher discovered through verbal communication with the four nurse practitioners that exercise was frequently encouraged for clients even though this was not documented (Phillips, 1997). The work of the current researcher has provided prescriptive and perceptual values.

The review of literature revealed significant information in the area of health-related behaviors and health-promotion practices. The studies revealed that exercise plays a key role in contributing to the longevity of life and decreased morbidity and mortality rates (Kushi et al., 1997; Lakka et al., 1994; Thune et al., 1997). The study by Callaghan (1995) found that male and female nurses were less likely to be compliant and reported less exercise than their non-nursing counterparts.

Francis (1996) identified that the physical activity levels in children are comparable to the levels reported once the individual reaches adulthood. The study by Harrell et al. (1997) found that the young people of

America are physically inactive which will lead to inactive adults, thus more costly health care.

Williford et al. (1992) determined that although primary care providers support exercise as a health promotion, they lack the confidence necessary to develop exercise prescriptions. They recommend that primary care providers increase their efforts and refine their skills in the area of exercise and prescriptive exercise practices. The author of the current study determined a need for the study of personal health-promotion practices and exercise prescriptive practices of adult, family, and gerontological nurse practitioners.

Efficacy of Internet Usage

Nurses have established themselves as Internet users via discussion groups and list serves. Lakeman (1997) studied the advantages and disadvantages of utilizing the Internet as a data collection device for studies involving the health care profession. Barriers to Internet research involved the ability to operate a computer, the financial burden of maintaining Internet access through schools or public providers, and the restriction or the expense of telephone access necessary for Internet connection.

The advantages of Internet usage included a lower financial requirement than usual data collection methods, easier methods of obtaining qualitative and quantitative data, the decreased amount of time required for data collection, and the convenience for participants who choose to respond to the data collection tools posted on the Internet. Lakeman (1997) concluded that Internet usage for data collection is an easier, less expensive, and less time-consuming method for the researcher. Participants feel less stressed and have more time to consider responses than in an open interview setting. Responses are more likely to be carefully considered if the participant responds at his or her own pace.

The Internet was the data collection device utilized by Fawcett and Buhle (1995) in their research regarding the experiences of cancer survivors. Subjects were invited to participate by posting on various cancer support group list serves and CompuServe's cancer forum. The questionnaire utilized by the researcher was available on CompuServe or downloaded to a personal computer and completed at a more convenient time. The survey was also posted on the Internet. After completion of the questionnaire, the user pressed the "send" key

automatically sending rhte form to the researcher's e-mail message box. All data responses were analyzed by SPSS/PC computer software.

Thirty subjects ranging in age from 20 to 67 years responded to the electronic questionnaire. Fifty-three percent were male respondents with 93% of those being Caucasian. Emotional difficulties were the most common difficulty encountered by the participants followed by physical problems related to the cancer and treatment effects. Coping mechanisms utilized by the survivors included reading, meditation, biofeedback, and enjoying the remainder of life (Fawcett & Buhle, 1995).

The researchers concluded that use of the Internet as a data collection device is expedient, informative, feasible, and yields good results. Anonymity can sometimes provide the researcher with information on topics that face-to-face interviews would prove uncomfortable and difficult to discuss. The device provided a link with a larger segment of the educated population of computer users (Fawcett & Buhle, 1995).

Summary

This selected review of literature discussed the effects of inactivity on all-cause mortality and

morbidity, the health promotion practices of student nurses, and the development and reproduction of exercise prescriptions. This review presented information that indicates the need to investigate the personal health-related activities and prescriptive practices of nurse practitioners. The review also presented evidence that the Internet is an expedient and feasible method for data collection. The succeeding chapter will describe the methods used to conduct the study.

Chapter III

The Method

Health promotion and the participation in health-related behaviors have become the focus of primary care providers across the nation. The use of nurse practitioners as primary care providers has become increasingly more popular, making it necessary for this population to become well-educated and informed regarding the benefits of physical activity for their own interest and that of their clients. Therefore, the purpose of this study was to describe the personal individual exercise practices and exercise prescriptive practices of nurse practitioners.

The following chapter describes the methods with which data were collected. A convenience sample of adult, family, and gerontological nurse practitioners who utilize the Internet was used. The Auburn Exercise Questionnaire with modifications by the researcher was used to collect the data. Descriptive statistics including frequencies and percentiles were used for data analysis.

Design of the Study

The design of the study was a quantitative, descriptive design utilizing a survey for data obtainment. The study documented the individual exercise habits and exercise prescriptive practices of adult, family, and gerontological nurse practitioners who utilize the Internet. A nonprobability convenience sampling design was used. A modified version of the Auburn Exercise Questionnaire was used to obtain the data (see Appendix A).

Variables

For the purpose of the study, the controlled variables were adult, family, and gerontological nurse practitioners who utilize the Internet. The variables of interest were the individual exercise habits of nurse practitioners and the exercise prescriptive practices of nurse practitioners.

Setting, Population, and Sample

The setting for the study was the Internet via the World Wide Web. Adult, family, and gerontological nurse practitioners were the target population. These populations were chosen because the individual exercise

practices can be evaluated in this group and because the exercise prescription is appropriate for the population treated by these nurse practitioners.

Methods of Data Collection

Instrumentation. Permission was obtained from R. Lazenby, CRNP, MSN, for the use of and revision of the Auburn Exercise Questionnaire (see Appendix B). The instrument was devised by a panel of physicians, nurses, and exercise physiologists in 1992 to determine the attitudes and practices of physicians in the promotion and prescription of exercise. Test-retest reliability scores on a sample of 50 subjects ranged from 0.95 to 0.98 for each of the multiple-choice questions. The revision includes demographic data and information that determine the individual exercise habits of nurse practitioners who utilize the Internet.

The questionnaire was divided into six categories, with each category testing a different aspect of the study. The division allowed for easy category comparison of the data. The categorical divisions were the following: (a) demographic data, (b) information regarding the clinical setting and practice of the nurse practitioner, (c) most common diagnostic reason for the development of

an exercise prescription, (d) exercise prescriptive practices of nurse practitioners, (e) individual exercise practices of nurse practitioners, and (f) knowledge level of practitioners regarding exercise and future goals of professional organizations. Respondents were not compared to each other nor to a total raw score. For this reason, no total raw score for each respondent was obtained.

Procedures. Data collection was initiated upon approval from the Committee on Use of Human Subjects in Experimentation (see Appendix C). Subjects were invited to participate via postings on a WWW server for nurse practitioners on the Internet (http://www.nurses-call.org/mailing.lists/;nursenet@listserv.utoronto.ca; and npinfo!nurse.net). An http address was given for location of the questionnaire on the home page of the researcher. The home page designed by the researcher was posted on the Internet with information about the researcher and the study. To gain access to the consent form, the participant simply clicked on the "Continue" option. The consent form (see Appendix D) was attached to the home page and could be scrolled for reading. Consent was given by constructing a code number consisting of U.S. area code and the first, middle, and last initial of the respondent. The Auburn

Exercise Questionnaire was accessed by clicking on the "Submit" option. The user completed the electronic survey, reconstructed the code number, and clicked the "Submit" option. This forwarded the consent and completed survey to the researcher's e-mail box. Upon receiving completed questionnaires in the e-mail messenger box, responses were copied and transferred to a WordPerfect program which eliminated e-mail addresses, then printed the data for analysis. All responses were then deleted from the e-mail of the researcher. By utilizing this process, confidentiality of the participant was maintained. Participants were given the option to print and submit consent forms and completed questionnaires via regular mail also. The address was destroyed and only consents and completed questionnaires were retained for analysis. Completed questionnaires were kept in a locked file cabinet accessible only to the researcher until final data analysis at which time all information was destroyed.

Method of Data Analysis

Descriptive statistics were used for data analysis. Percentiles, frequencies, and category comparisons were used to describe the individual exercise habits, prescriptive practices of nurse practitioners, and the

most common diagnostic reason for prescribing exercise. Analysis of demographic data included the mean and range for each question.

Summary

The goal of the research was to describe the individual exercise habits and exercise prescriptive practices of nurse practitioners who utilize the Internet. All adult, family, and gerontological nurse practitioners who use the Internet were chosen as the target population. The survey consisted of a questionnaire posted on a home page designed by the researcher. The methodology was described including the procedure for consent, submission to the e-mail address of the researcher, and for maintaining the confidentiality of respondents. Descriptive statistics were used for data analysis.

Chapter IV

The Findings

The purpose of this study was to describe the individual exercise habits and exercise prescriptive practices of adult, family, and gerontological nurse practitioners who utilize the Internet. In this chapter, the sample will be described and data analysis will be presented. The Modified Auburn Exercise Questionnaire was used to obtain data. Descriptive statistics were used for data analysis.

Description of Sample

All adult, family, and gerontological nurse practitioners who responded to the questionnaire via the Internet were utilized for the sample. The researcher-developed home page with the consent form and questionnaire attached were posted on-line on March 1, 1998. Questionnaires were accepted until April 8, 1998. Thirty-three questionnaires were received by the researcher via e-mail, and three questionnaires were

received via postage mail. Two questionnaires were returned incomplete. A total of 34 usable questionnaires were obtained. The age of the respondents ranged from 25 to 62 years with a mean age of 49.1 years. Demographic data revealed that the respondents were predominantly Caucasian (94.2%, n = 32) (see Table 1).

Table 1

Demographic Characteristics of Individual Respondents

Race	n	%
Caucasian	32	94.2
Hispanic	1	2.9
Asian American	1	2.9

Female respondents comprised the majority of the sample (94.2%, n = 32). Of the specialties represented, family nurse practitioners supplied 79.4% (n = 27) of the sample, with adult (17.6%, n = 6) and acute care (3%, n = 1) supplying the remaining sample. There were no gerontological nurse practitioners who responded to the questionnaire. The responding nurse practitioners represented every region in the United States, and one

practitioner from the United Kingdom (2.9%). Regions in the United States included the Southeast (23.5%, n = 8), Northeast (17.7%, n = 6), Northwest (11.8%, n = 4), Midwest (11.8%, n = 4), South (11.8%, n = 4), Southwest (8.8%, n = 3), East (5.9%, n = 2), and Mid-Atlantic (2.9%, n = 1). Fifty-three percent (n = 18) of the respondents were employed in private practice, 29% (n = 10) in community or public health, 9% (n = 3) in acute care settings, and 9% (n = 3) in college health settings. The majority of nurse practitioners (82.5%, n = 28) had been in practice 5 years or less. Fifty-nine percent (n = 21) of the respondents reported seeing an average number of 11 to 20 patients per day (see Table 2).

Table 2

Average Number of Patients Seen Per Day by Nurse Practitioners

No. of patients seen	n	%
0-10	8	26.0
11-20	21	59.0
21-30	5	15.0

The average age of patients seen was 31-40 (32.4%, n = 11), 21-30 (14.7%, n = 5), 51-60 (14.7%, n = 5), 41-50 (11.8%, n = 4), over 60 (11.8%, n = 4), 11-20 (8.7%, n = 3), and 0-10 (5.9%, n = 2).

Results of Data Analysis

The study addressed the following question: What is the most common diagnosis of clients seen by nurse practitioners who utilize the Internet? Most commonly the respondents saw clients with a diagnosis of cardiovascular disease (32.4%, n = 11) (see Table 3).

Table 3

Most Common Diagnoses of Patients Seen by Nurse Practitioners

Diagnosis	n	%
Cardiovascular disease	11	32.4
Stress	8	23.5
Diabetes	6	17.7
Obesity	5	14.7
Depression	3	8.8
Cancer	1	2.9

The researcher also addressed the following question in the study: What are the most common medical reasons for which nurse practitioners prescribe exercise for their clients? Weight management accounted for 29.2% (n = 24) of medical reasons for the exercise prescription followed by general physical fitness (26.8%, n = 22), rehabilitation (17.1%, n = 14), athletic performance (2.4%, n = 2), and other (24.4%, n = 20). Among the diagnoses specified in other categories were hypertension and diabetes management at 20% (n = 4) each, hyperlipidemia (15%, n = 3), stress reduction, depression, improving lower extremity circulation, arthritis at 5% (n = 1) each, and unspecified reasons (20%, n = 4). Those prescriptions given for rehabilitation revealed specific instructions for weight management (28.6%, n = 12), cardiopulmonary rehabilitation (26.2%, n = 11), orthopedic rehabilitation (19%, n = 8), and other (26.2%, n = 11). Other categories included diabetic rehabilitation, general physical fitness, hypertension, and deconditioning from disease (9.1%, n = 1) each and 63.6% (n = 7) unspecified rehabilitation.

Table 4

Most Common Medical Reasons Cited by Nurse Practitioners for Prescribing Exercise

Medical reason	n	%
Weight management	24	29.2
General physical fitness	22	26.8
Rehabilitation	14	17.1
Athletic performance	2	2.4
Other	20	24.4
Hypertension	4	20.0
Diabetes management	4	20.0
Hyperlipidemia	3	15.0
Stress reduction	1	5.0
Depression	1	5.0
Improving circulation	1	5.0
Arthritis	1	5.0
Unspecified	4	5.0

Note. Respondents were given the option of choosing medical conditions other than those specified. This accounts for totals > 100%.

The study sought to determine the exercise prescriptive practices of nurse practitioners who utilize the Internet. Exercise history was part of the initial examination of new patients in 64.7% (n = 22) of cases. Participation in a regular exercise program was encouraged

by 97.1% (n = 33) of the respondents. However, only 47.1% (n = 16) of nurse practitioners developed an exercise prescription for their clients as opposed to 52.9% (n = 18) who did not write a prescription for exercise. Nurse practitioners who most commonly see clients with a diagnosis of cardiovascular disease develop exercise prescriptions for only 36% (n = 4) of their clients. In all other medical diagnosis combined, including diabetes, stress, cancer, obesity, and depression, nurse practitioners indicated that they prescribed exercise for 56.5% (n = 13) of clients.

Nurse practitioners most commonly refer their clients to physical therapists (46.0%, n = 16) and exercise physiologists (20.0%, n = 7) for the initiation of an exercise program. Professional advice regarding exercise is obtained from a physical therapist (44.2%, n = 16) and exercise physiologist (23.3%, n = 10), or physician (23.3%, n = 10). Nurses (4.7%, n = 2) and cardiac rehabilitation personnel (2.3%, n = 1) were also consulted regarding exercise. Walking was the mode of exercise most commonly prescribed (52.5%, n = 31), followed by swimming (18.6%, n = 11), bicycling (11.9%, n = 7), aerobics

(11.9%, n = 7), and running, weight lifting, and stretching at 1.7% (n = 1) each (see Table 5).

Table 5

Referrals by Nurse Practitioners to Other Medical/Non-Medical Disciplines

Discipline	n	%
Physical therapist	16	45.7
Other (including aerobics instructors, cardiac rehab centers, "Y" personnel, social workers, unspecified)	10	28.6
Exercise physiologist	7	20.0
Physician	2	5.7

The final question addressed by the researcher in the study was the following: What are the personal exercise practices of nurse practitioners who responded to the questionnaire via the Internet? Exercise was regarded as highly important by 88.2% (n = 30) of the respondents with 11.8% (n = 4) feeling that exercise was somewhat important. Of the sample, 94.1% (n = 32) engaged in a regular exercise program. Walking was the most common form (38.3%, n = 23), with aerobics (25%, n = 15), bicycling

(16.7%, n = 10), and jogging (1.7%, n = 1) also mentioned (see Table 6). Other forms of exercise mentioned comprised 32.3% of the sample.

Table 6

Common Forms of Exercise in Which Nurse Practitioners Participate

Exercise	n	%
Walking	23	38.3
Aerobics	15	25.0
Bicycling	10	16.7
Jogging	1	1.7

Among the types of exercise included under the category "Other" were weight training (45.4%, n = 5), skiing (18.2%, n = 2), yoga (9.1%, n = 1), gardening (9.1%, n = 1), and home gym workouts (9.1%, n = 1). An unspecified category comprised 9.1% (n = 1) of the Other selection. The majority of respondents participated in exercise at least twice per week (37.5%, n = 12) followed by 28.1% (n = 9) three times per week, 12.5% (n = 4) four times per week, 12.5% (n = 4) five times per week, 6.3% (n

= 2) once per week, and 3.1% (n = 1) exercising on a daily basis (see Table 7).

Table 7

Frequency in Which Nurse Practitioners Engage in Exercise

Frequency	n	%
Twice per week	12	37.5
3 times per week	9	28.1
4 times per week	4	12.5
5 times per week	4	12.5
Once per week	2	6.3
Daily exercise	1	3.1

Two respondents (5.9%) did not engage in any form of regular exercise. Respondents were asked to identify the length of time spent during each episode of exercise. Their responses were 21-40 minutes (43.8%, n = 14), 41-60 minutes (31.2%, n = 10), over 60 minutes (15.6%, n = 5), and 0-20 minutes (9.4%, n = 3).

The researcher sought to determine the knowledge level of practitioners regarding exercise and the future goals of professional organizations. The American College

of Sports Medicine Guidelines for developing and maintaining physical fitness in adults were familiar to 47.1% (n = 16) of the respondents while 79.4% (n = 27) were familiar with the Healthy People 2000 objectives. The 1996 Surgeon General's Report, a document stressing the positive impact physical activity can have on quality of life and health for Americans, was familiar to 44.1% (n = 15) of the respondents. The researcher identified that 70.1% (n = 24) of the subjects did not take any college level courses related to the development of exercise prescriptions, while 82.4% (n = 28) felt there was a need in professional schools for courses dealing with the medical aspects of exercise. Continuing education concerning the development of an exercise prescription was available to 17.6% (n = 6) of the respondents, but 88.2% (n = 30) indicated they would attend workshops on developing exercise prescriptions if offered.

Summary

The purpose of the study was to describe the individual exercise habits and exercise prescriptive practices of nurse practitioners who utilize the Internet. A total of 34 usable questionnaires were obtained. The Modified Auburn Exercise Questionnaire was used to obtain

the data. The responses obtained provided data to describe the individual exercise practices and health promotion practices of nurse practitioners who utilize the Internet.

Chapter V

The Outcomes

The life expectancy for Americans has dramatically increased over the past 30 years. Preventive care has, therefore, become a focal point for the development of behaviors that will increase the longevity of life while at the same time decreasing morbidity rates. Research has repeatedly documented the positive effects of regular exercise in reducing both morbidity and mortality rates for those who engage in a regular exercise program. The Healthy People 2000 objectives have challenged health care providers to increase the level of physical activity among the American public. Primary care providers are successfully meeting that challenge by developing individualized prescriptions for regular exercise. Nurse practitioners can assist their clients by providing written exercise prescriptions, thereby promoting healthier behaviors. However, nurse practitioners cannot successfully prescribe exercise unless personal exercise opinions and habits are examined. The purpose of this

study was to determine the individual exercise habits and exercise prescriptive practices of adult, family, and gerontological nurse practitioners who utilize the Internet. The sample consisted of all adult, family, and gerontological nurse practitioners who responded to the researcher-designed questionnaire via the Internet. Data were collected from 34 respondents to the researcher's home page questionnaire. The questionnaire determined demographic data, clinical data, individual exercise habits, and exercise prescriptive practices of nurse practitioners. Descriptive statistics were used to analyze the data. In this chapter, the outcomes of the study are presented.

Summary of Findings

The most common diagnosis of clients treated by nurse practitioners, the individual exercise habits of nurse practitioners, and the exercise prescriptive practices of nurse practitioners were studied. Data were obtained from subjects who responded to the researcher's home page questionnaire on the Internet. A total of 34 questionnaires representing every geographical area in the United States and Great Britain were obtained for data analysis.

Nurse practitioners are gaining increasing acceptance in the health care profession and have optimum opportunity to make a positive influence on health care promotion. In the current study, a total of 82% (53% in private practice and 29% in community or public health) of nurse practitioners work in areas where they can be influential in the promotion of health-related behaviors on a daily basis. The majority of these practitioners (82%) have been in practice for 5 years or less. New guidelines and objectives, such as those delineated by the American College of Sports Medicine and Healthy People 2000, should be familiar material to these practitioners. Individuals who adhere to these objectives and guidelines for physical activity can expect to have a significant impact on their own morbidity, mortality, and quality of life.

Kushi et al. (1997), Lakka et al. (1994), and Thune et al. (1997) reported that increased activity levels decreased morbidity rates for persons aged 42 to 69 years. Harrell et al. (1997) determined that the activity levels during adulthood are established in childhood and that the younger generation is predominantly inactive. In the current study, only 11.8% (n = 4) of the clients seen were over the age of 60 years. This indicates that 88.2% of the

population of the United States and Great Britain seen by nurse practitioners are less than 60 years of age and can be influenced to begin physical activity programs which can have a significant impact on morbidity and mortality rates. These statistics indicate that nurse practitioners also have the opportunity to educate the youth of today regarding the importance of routine physical activity and the long-term effects on longevity and quality of life, thus establishing habits that may continue throughout adulthood.

Physical inactivity has been determined to be a causative factor in approximately one third of deaths due to cardiovascular disease. Cardiovascular disease is one of the most costly illnesses in the United States. Lakka et al. (1994) studied the influences physical activity can have in the reduction of morbidity and mortality rates associated with cardiovascular disease. The current study identified cardiovascular disease as the most common diagnosis of all clients seen by nurse practitioners. Since cardiovascular disease continues to plague Americans under the age of 60 years, nurse practitioners need to become educators regarding the benefits of exercise and

initiate an exercise prescription for every patient regardless of age.

The incidence of exercise prescription was the primary focus in this study. Williford et al. (1992) determined that clients are more likely to engage in and continue an exercise program if they receive an individualized written prescription. Phillips (1997) found in conversation with four nurse practitioners representing geographic areas of the state of Mississippi that each one reported frequently encouraging exercise for their clients. However, only one example of an exercise prescription was discovered during a review of 100 client records. Williford et al. (1992) found that 91% of physicians recommended and encouraged exercise, but only 30% actually developed and wrote an individualized exercise prescription. In a review of 34 respondents in the current study, clients were encouraged to exercise 97% of the time. However, only 36% received a prescription for exercise. For all diagnoses, other than cardiovascular disease, treated by nurse practitioners (obesity, stress, cancer, diabetes, and depression), nurse practitioners prescribed exercise for only 56.5% of clients. Exercise prescription is an area where nurse practitioners are

providing a positive impact. However, there is room for improvement if nurse practitioners hope to significantly decrease morbidity and mortality rates among clients.

Reasons for not developing exercise prescriptions among physicians included a lack of confidence in determining exercise habits and a lack of knowledge regarding exercise prescription. Nurse practitioners reported taking the initiative in developing exercise prescriptions as evidenced by the increasing frequency with which exercise prescriptions were given (47.1%). However, the respondents noted that continuing education is not available in many areas, and many nurse practitioners reported an interest in attending workshops for developing and initiating exercise programs and prescriptions (88%).

The physical activity goals of Healthy People 2000 are that no more than 15% of persons aged 6 years and older will be living a sedentary lifestyle, a minimum of 30% of the population will engage in daily physical activity, and 20% of the adult population will engage in a level of physical activity that will maintain cardiovascular fitness (Francis, 1996). One potential problem with these goals is that perhaps the objectives

are too global, which confuses the public. The American College of Sports Medicine (ACSM) outlines more specific guidelines which recommend 20- to 30-minute periods of exercise 3 to 5 days per week. However, while 79.4% of nurse practitioners responding were familiar with the Healthy People 2000 objectives, only 47.1% of the respondents were familiar with the ACSM guidelines.

Nurse practitioners can be positive role models for their clients. It is imperative that primary care providers engage in health-promoting behaviors in order to recommend those behaviors for their clients. The current researcher discovered that 94% of all respondents exercised with 65% engaging in exercise two to three times per week. One respondent did not participate in any exercise program, and only 6% exercised as infrequently as once per week. These statistics indicate that nurse practitioners in this sample are becoming the vanguard for exercise and can be the positive role models that Americans need to encourage their participation in health-promoting behaviors.

Pender's (1996) Health Promotion Model provides the theoretical framework health care providers need to promote health promotional activities. Pender states that

individual behavior is influenced by potential benefits, self-efficacy, and anticipated barriers. By identifying these potential benefits, the nurse practitioner can devise an individualized exercise program in which the client will be more likely to engage. The Health Promotion Model provides the practitioner with a structure which is useful for explaining, predicting, and altering health-promoting behaviors in clients.

The structure found in the Health Promotion Model was also useful in the individual health promotional practices of nurse practitioners. The author identified that the majority of nurse practitioners in the sample engaged in routine physical activity and actually encouraged their clients to exercise. One may speculate that nurse practitioners who are active Internet users may also be active in their leisure time also. Yet the majority of nurse practitioners did not provide a written plan for the execution of an exercise program for their clients even though they, themselves, engaged in routine physical exercise. The reason for not writing an exercise prescription could be the lack of knowledge necessary to develop an exercise prescription. The present study discovered that exercise physiologists were consulted by

nurse practitioners in most situations. One may assume from the study results that the nurse practitioners were aware of the benefits of an exercise program. Therefore, practitioners must assume an active role in the same health promotional activities they engage in if the Healthy People 2000 goal that 65% of health care providers are routinely prescribing exercise is to be met.

Implications for Nursing

Nurse practitioners are gaining increased recognition as primary health care providers across the nation. Nurse practitioners are specially trained nurses who must assume responsibility for the care they provide. They must be educators in addition to diagnosticians. As primary care providers, nurse practitioners can positively influence the health care practices of the nation by accurately diagnosing, treating the individual, both pharmacologically and non-pharmacologically, and educating clients regarding healthier lifestyles and health-promoting behaviors.

Research regarding the exercise prescriptive practices and individual exercise practices and individual exercise practices of nurse practitioners was limited. This indicates the need for further research not only for

and by nurse practitioners but also in the primary care setting. The cited research was convincing, which recommends physical activity to promote longevity and quality of life. As determined by this study, nurse practitioners who are made aware of writing exercise prescriptions can pave the way for primary care providers in the initiation of individual exercise programs by writing individualized exercise prescriptions.

Pender's (1996) Health Promotion Model provided the appropriate theoretical background for the study. Pender stressed that health promotion programs must be designed for individuals as well as families and communities in which the individual resides. Pender also indicated that one important aspect for the individual who engages in an exercise program is the expected benefit of the behavior. Nurse practitioners, by engaging in healthy behaviors and routine physical activity, provide a positive role model for both their clients and other primary care providers.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Replication of the study using a larger sample size.

2. Replication of the study over an extended period of time.

3. Replication of the study without using the Internet to obtain a comparison of the results.

4. Conducting research focusing on the most common medical diagnoses for which exercise is prescribed.

5. Replication of the study to include pediatric nurse practitioners to determine exercise promotion practices among children and adolescents.

6. Conducting research using participants who have received exercise prescriptions and their compliance in exercise programs.

Summary

Nurse practitioners are becoming the primary health care provider for increasing numbers of Americans. As evidenced by the current study results, practitioners are also accepting the challenge in the promotion of health care behaviors among their clients. If the cost of health care in America is to decrease, primary health care providers must be more conscientious and dedicated to the education of clients regarding positive health care practices. The development of individualized exercise prescriptions is one facet of this health promotion

campaign. Nurse practitioners can be the leaders of positive role modeling for clients and other health care providers. This study has determined that nurse practitioners feel that exercise is an important aspect of individual behavior and that the majority of practitioners who participated in the study currently engage in routine physical activity. This strongly supports the implication that nurse practitioners can positively influence their clients toward a healthier 2000.

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APPENDIX A

AUBURN EXERCISE QUESTIONNAIRE (MODIFIED)

Auburn Exercise Questionnaire
(Modified)

Please read each question and click on the desired response:

1. Age: _____ years

2. Sex
   _____ Female
   _____ Male

3. Race
   _____ African American
   _____ Asian American
   _____ Caucasian
   _____ Hispanic
   _____ Mixed
   _____ Other

4. Are you a citizen of the United States?
   _____ Yes, Region_____
   _____ No, Country _____

5. Nurse practitioner specialty
   _____ Family
   _____ Adult
   _____ Gerontological

6. Type of setting where you are employed as NP
   _____

7. Number of years have in practice as NP
   _____ 0-5 years
   _____ 6-10 years
   _____ 11-15 years
   _____ Over 15 years

8. Average number of patients seen per day
   _____ 0-10
   _____ 11-20
   _____ 21-30
   _____ Over 30

9. Average age of patients seen
   _____ 0-10 years
   _____ 11-20 years
   _____ 21-30 years
   _____ 31-40 years
   _____ 41-50 years
   _____ 51-60 years
   _____ Over 60 years

10. Most common diagnosis of patients seen
   _____ Cardiovascular disease
   _____ Diabetes
   _____ Stress
   _____ Depression
   _____ Arthritis
   _____ Obesity

11. Is exercise history a part of the initial examination of new patients?
   _____ Yes
   _____ No

12. Do you encourage your patients to participate in regular exercise?
   _____ Yes
   _____ No

13. Do you normally develop exercise prescriptions for patients?
   _____ Yes
   _____ No

14. Does another member of your organization develop exercise prescriptions?
   _____ Yes
   _____ No

15. Do you refer patients to other health professionals to develop exercise prescriptions/programs (check)?
    _____ Physician
    _____ Nurse
    _____ Physical therapist
    _____ Exercise physiologist
    _____ Other, please list or explain_____
    _____

16. Are patients referred to you to develop an exercise prescription?
    _____ Yes
    _____ No

17. If you prescribe exercise, is it for (check all that apply)?
    _____ rehabilitation
    _____ athletic performance
    _____ general physical fitness
    _____ weight management
    _____ Other (please specify)_____

18. If you prescribe exercise for rehabilitation is it for?
    _____ cardiopulmonary rehabilitation
    _____ orthopedic rehabilitation
    _____ weight management
    _____ Other_____

19. When you need additional advice concerning exercise, what person do you normally consult?
    _____ Physician
    _____ Physical therapist
    _____ Nurse
    _____ Exercise physiologist
    _____ Other (specify)_____

20. What mode of exercise do you generally prescribe to increase cardiovascular fitness?
    _____ Walking
    _____ Bicycling
    _____ Aerobics
    _____ Swimming
    _____ Other (specify)_____

21. Do you exercise yourself?
    _____ Yes
    _____ No

22. What kind of exercise do you engage in?
    _____ Walking
    _____ Aerobics
    _____ Jogging
    _____ Bicycling
    _____ Other

23. How often do you engage in exercise?
    _____ Once per week
    _____ Twice per week
    _____ 3 times per week
    _____ 4 times per week
    _____ Over 4 times per week (please specify)_____

24. How long do you exercise during each episode of exercise?
    _____ 0-20 minutes
    _____ 21-40 minutes
    _____ 41-60 minutes
    _____ Over 60 minutes

25. Do you feel exercise is
    _____ Not important at all
    _____ Not as important as other aspects of care
    _____ Somewhat important
    _____ Highly important

26. Are you familiar with the American College of Sports Medicine Guidelines for developing and maintaining physical fitness in adults?
    _____ Yes
    _____ No

27. Are you familiar with the Healthy People 2000 guidelines for exercise?
    _____ Yes
    _____ No

28. Are you familiar with the 1996 Surgeon General's Report on Physical Activity and Health?
    _____ Yes
    _____ No

29. Did you take any college level courses related to the development of exercise prescriptions?
_____ Yes
_____ No

30. In your opinion, is there a need in professional schools for a course related to the medical aspects of exercise?
_____ Yes
_____ No

31. Is continuing education available concerning how to develop an exercise prescription for different populations?
_____ Yes
_____ No

32. Would you attend a workshop on exercise prescription if one was offered?
_____ Yes
_____ No

Additional Comments:

To send by regular mail, print this web page and send to above address

OR

To send by E-mail complete the following and press the button below:
USA Area Code:___First Initial:___Middle Initial:___Last Initial:___

APPENDIX B

PERMISSION TO USE TOOL

271 Hidden Lake Drive
Columbus, MS 39702

August 11, 1997

Henry N. Williford, EdD
Human Performance Laboratory
7300 University Drive
Auburn University at Montgomery
Montgomery, AL 36117

Dear Mr. Williford,

I am researching exercise prescription practices of nurse practitioners in adult, family, or gerontological practice. I am presently seeking the role of a family nurse practitioner in the Master of Science in Nursing program at Mississippi University for women. I am particularly interested in the questionnaire developed and utilized in your study, A Survey of Physicians' Attitudes and Practices Related to Exercise Promotion. I am also interested in any further studies you have conducted in this field. If I find your questionnaire is appropriate, may I have permission to use it in my study?

I look forward to hearing from you soon. Thank you for your time and consideration.

Sincerely,

Cindy L. Robertson, RN, BSN

Subject: **Re: research**
Date: Tue, 27 Jan 1998 07:40:05 +600
From: "Ramona Lazenby (School of Nursing)" <rlazenby@mickey.aum.edu>
Organization: Auburn University at Montgomery
To: "Cindy L. Robertson" <clr3@MUW.Edu>

Dear Cindy,

You have our permission to use the Exercise Questionnaire with necesssary modificiations. Good luck and I look forward to keeping in touch with you!!! Ramona B. Lazenby, CRNP, MSN

APPENDIX C

APPROVAL OF THE COMMITTEE ON USE OF HUMAN SUBJECTS IN EXPERIMENTATION OF MISSISSIPPI UNIVERSITY FOR WOMEN

MISSISSIPPI UNIVERSITY FOR WOMEN
Columbus, MS 39701

Office of the Vice President for Academic Affairs
Eudora Welty Hall
P.O. Box W-1603
(601) 329-7142

February 23, 1998

Ms. Cindy L. Robertson
c/o Graduate Program in Nursing
Campus

Dear Ms. Robertson:

I am pleased to inform you that the members of the Committee on Human Subjects in Experimentation have approved your proposed research as submitted.

I wish you much success in your research.

Sincerely,

Susan Kupisch

Susan Kupisch, Ph.D.
Vice President
for Academic Affairs

SK:wr

cc: Mr. Jim Davidson
Dr. Mary Pat Curtis

APPENDIX D

INFORMED CONSENT

Exercise Questionnaire Survey

If you are educated as a family, adult, or gerontological nurse practitioner, I am inviting you to participate in a study about exercise prescription. Your participation in the study is greatly appreciated. **Please read the following information.**

This study contains a consent form and a questionnaire for completion. Please follow the directions and check the answer that most closely applies.

Informed Consent

You are being invited to participate in a study to determine the exercise prescription practices of nurse practitioners. This study is being conducted by Cindy Robertson, a graduate nursing student at Mississippi University for Women.

If you elect to participate, you will be asked to complete one questionnaire that includes demographic data, various questions about exercise, and prescriptive practices regarding exercise. The questionnaire will take approximately 7 minutes of your time to complete. Upon completion of the questionnaire, you will have the option of returning responses via E-mail or printing the questionnaire and returning via regular mail.

Risks

Privacy of the completed questionnaire cannot be guaranteed during E-mail transmission over the Internet. Once the questionnaire is submitted, each will be assigned a code number determined by the participant, and the E-mail address will be deleted by the researcher. No other person will have access to the researcher's password to view E-mail. There is no risk of physical, mental, or emotional suffering, and no risk of physical injury.

Confidentiality

The information gathered during this study will be kept confidential. After all data have been analyzed, the findings of the study will be published for scientific purposes as aggregate data, and your identity will not be

disclosed. The completed questionnaires will contain a code number. Your code number will consist of your telephone area code, with a first, middle, and last initial. You will be instructed on the questionnaire about how to fill in the blanks to create your code number. The researcher will keep a confidential list of questionnaires to prevent duplication. Confidentiality will be maintained by the deletion of all E-mail responses. All completed questionnaires will be kept secured until analysis of the data is complete, at which time they will be destroyed.

Withdrawal from the Study

Participation in the study is strictly voluntary. You are free to withdraw from the study at any point. If you desire to withdraw your questionnaire, do not forward the information via E-mail or regular mail. You are not required to answer every question. A space is provided at the end of the questionnaire for any additional information you wish to include.

Questions

If you have questions concerning the actual study or the results of the study, please contact me via E-mail or I can be reached at home after 5:00 p.m.
E-mail address: clr3@muw.edu Phone: (601) 328-9627

Created signature for E-mail responses:
It is important to complete the following on each section:
USA Area Code:___First Initial:___Middle Initial:___Last Initial:___

For printing of consent form:

_____ _____
Signature of Participant Date

_____ _____
Signature of Investigator Date

To send by regular mail, print this web page and send to:
Cindy Robertson
271 Hidden Lake Drive
Columbus, MS 39702

--OR--

To send by E-mail press the button below to continue the survey.